

REMARKS

In reply to the Office Action of April 24, 2006, Applicant submits the following remarks. Claims 1 and 24 have been amended. Claims 27-50 have been added. Applicant respectfully requests reconsideration in view of the foregoing amendments and these remarks.

Section 112 Rejections

Claim 24 was rejected under 35 U.S.C. § 112, ¶ 1 as failing to comply with the written description requirement. Claim 24 has been amended to require that one of the organic layers is an emitting layer or contains a light-responsive material. The amendment is supported at least by the paragraph on page 23, starting at line 13. The applicant believes that the amendment addresses the Examiner's rejection and requests withdrawal of the rejection.

Section 103 Rejection

Claims 1-4, 6-7 and 9-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,787,063 ("Endo") in view of U.S. Patent No. 6,982,179 ("Kwong '179"), by U.S. Publication No. 2004/0214038 ("Kwong '038") in view of Kwong '179, or by U.S. Publication No. 2004/0021413 ("Ito") in view of Kwong '179. The applicant respectfully disagrees.

Endo describes an organic EL panel 70 having a pixels 71 with hole injection layer 16 and a light-emitting layer 18 (FIG. 7, col. 10, lines 35-42, col. 11, lines 38-52).

Kwong '179 describes a hole transport layer 340 that can be insoluble in the solvent used to deposit the emissive layer (Figure 3, col. 10, lines 28-53). The hole transport layer can be cross-linked by photochemical or thermal treatment. If the material is cross-linked, suitable cross-linkable groups in the material to be cross-linked include acrylate, vinyl, diacetylene, epoxide and oxetane.

Kwong '038 describes an organic light emitting device 100 having a substrate 110, an anode 115, a hole injection layer 120, a hole transport layer 125, an electron blocking layer 130,

an emissive layer 135, a hole blocking layer 140, an electron transport layer 145, an electron injection layer 150, a protective layer 155 and a cathode 160 (paragraph 25).

Ito describes a device with partition walls 4 formed on an insulating layer 8, with luminescent material 5 applied to pixel opening 6 (FIG. 5, paragraph 15).

Amended claim 1 is directed to an organic electronic device having a plurality of organic layers, wherein a first portion of at least one of said organic layers is cross-linked so that the first portion is insoluble in an organic solution, and the first portion includes one of a silane, an ester, a di-aromatic bromide, a photo-acid, a multivalent cation, or an acidic group as a cross-linking material. The amendment to claim 1 is supported at least at page 18, lines 20-24, page 19, lines 5-6 and 15-16 and page 25, lines 13-15.

The Examiner notes that Endo, Kwong '038 and Ito all fail to suggest or disclose cross-linking organic layers. For this element, the Examiner turns to Kwong '179. Claim 1 has been amended to require one of a silane, an ester, a di-aromatic bromide, a photo-acid, a multivalent cation, or an acidic group as a cross-linking material. Kwong '179 does not describe an organic layer having one of these materials as the cross-linking material. Rather, Kwong '179 suggests using an acrylate, vinyl, diacetylene, epoxide or oxetane. For at least this reason, applicant submits that no *prima facie* case of obviousness has been made to claim 1 in light of the amendment to claim 1. Claims 2-4, 6-7 and 9-25 depend from claim 1. For at least the same reasons as presented with respect to claim 1, applicant submits that no *prima facie* case of obviousness has been made to the dependent claims after amendment to claim 1.

Claim 26 is directed to an organic electronic device, where the device has a plurality of organic layers, wherein a first portion of the organic layers is cross-linked to render said first portion of said organic layers insoluble. At least one cross-linking agent in the first portion adds functionality to the first portion that the first portion does not have without the cross-linking agent.

The Examiner argues that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the functional layers of a device, including crosslinked layers, taught by Kwong et al. . . . because the layers taught by Kwong are functional

organic layers of an OLED device and Kwong et al. teaches the benefit of crosslinking some of the layers" (pages 4-6). The applicant respectfully draws the Examiner's attention to the language of the limitation, "wherein at least one cross-linking agent in the first portion adds functionality to the first portion that the first portion does not have without the cross-linking agent".

Kwong '179 fails to describe a cross-linking agent that adds functionality to a first portion of an organic layer that the first portion does not have without the cross-linking agent. Kwong describes a hole transport layer, for which PEDOT:PSS is often selected, because of its ability to provide hole injection and hole transport functions (col. 2, lines 44-50). The hole transport layer can also have the added function of blocking electrons and/or excitons (col. 2, lines 62-67). Kwong '179 also describes cross-linking the hole transport layer to make the layer insoluble in the solvent used to deposit the next layer, e.g., the emissive layer. However, Kwong does not suggest using a cross-linking agent that adds a function that would not otherwise be present in the hole transport layer functionality. That is, Kwong does not teach or suggest that any of the agents that are disclosed add a function to the hole transport layer, e.g., PEDOT:PSS, other than hole injection or hole transport. Nor does Kwong '179 suggest that cross-linking or adding a cross-linking agent would add a function to any of the other layers or materials that the layers or materials would not have without the cross-linking step or the cross-linking agent being added to the layer or material. Thus, Kwong '179 fails to teach or suggest a cross-linked portion of an organic layer wherein at least one cross-linking agent in the portion adds functionality to the portion that the portion does not have without the cross-linking agent. For at least this reason, applicant submits that no *prima facie* case of obviousness has been made with respect to claim 26.

Applicant respectfully requests withdrawal of the obviousness rejections.

New Claims

Claim 27 is new and is supported at least on page 13, line 12-page 14, line 2. Claims 28-48 are similar to pending claims 2-4, 6-7 and 9-25. Claims 27-49 depend from claim 26 and are

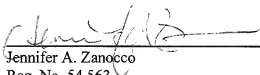
allowable over the cited references for at least the reasons provided above with respect to claim 26.

New claim 50 is supported by FIG. 2 and the accompanying text and page 25, lines 8-24. New claim 49 requires the emissive layer as being cross-linked. The applicant notes that while Kwong '179 describes "an insoluble organic layer that has any number of functions, including but not limited to a hole injection layer, a hole blocking layer, an electron blocking layer, an electron transport layer, and/or an electron injecting layer" (col. 11, lines 15-19), Kwong '179 does not suggest that the emissive layer is cross-linked.

The one-month extension of time fee in the amount of \$120.00 and the excess claims fees in the amount of \$1,200.00 are being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other required charges or credits to deposit account 06-1050.

Respectfully submitted,

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